AUSTRALIAN LICHENOLOGY: A BRIEF HISTORY.

by

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The study of Australian lichens commenced in 1791 when Jacques Labillardiere accompanied Admiral d'Entrecasteaux on his unsuccessful voyage to the South Seas in search of La Perouse. During this voyage they visited Tasmania in the vicinity of Hobart and Labillardiere made extensive botanical collections. On returning to France he published an account of these collections in his *Novae Hollandiae Plantarum Specimen* in 1806. In this work he named, described and illustrated *Baeomyces reteporus* Labill., a lichen which he collected at "Cape van Dieman" (Tasmania). This is the common coral lichen found in abundance in most coastal heathlands of eastern and south-eastern Australia, and is now known as *Cladia retipora* (Labill.) Nyl. It is therefore the first lichen that was described for Australia.

In 1801 Captain Matthew Flinders left England for Australia in the "Investigator". Robert Brown was the Botanist on the expedition which reached the west coast of Australia on December 6th, 1801. They explored the coastline of the Great Australian Bight, entered Spencers and St. Vincents Gulfs, then proceeded around the south-eastern coast to Sydney. In July 1802 Robert Brown again accompanied Flinders when he sailed north from Sydney on his voyage around Australia. In an appendix to Flinder's *Voyage to Terra Australis,* Brown (1814) lists fifty-eight lichen species common to Australia and Europe which he collected on these expeditions. Brown's collections lay in the British Museum (Natural History) for 75 years until Reverend James M. Crombie examined it and published (1880) the names of 73 lichens, including 12 species new to science. Of these five were described by him and seven were described by Dr. William Nylander of Paris. Crombie says that "this valuable collection . . . . was made between the years 1802–05, during the voyage of Captain Flinders to New Holland and Tasmania. . . . . The tracts of country in which the following lichens were collected are New South Wales and the adjacent south coast of Australia, the north and south-west district of Tasmania or Van Dieman's Land . . . .". It is unfortunate that the actual sites given by Crombie are not always those where Brown collected the specimens. Most lichens are sensitive to environment, so it is most unlikely that Brown found his specimen of *Parmelia australiensis* Cromb. on Mount Wellington (Table Mountain) Tasmania, and even more unlikely "growing on rocks" (*see* Bibby 1951 : 186). *Chondropsis semiviridis* Nyl. was also re-

* National Herbarium of Victoria

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corded from Mount Wellington and as both this and the former species usually occur in low rainfall areas it is most probable that they were collected at Spencers Gulf in 1802 as Brown walked inland to the low hills of the lower Flinders Ranges in South Australia. Brown may have inadvertently put Tasmanian labels on the specimens or else the labels may have been mixed at a later date.

In 1817, Charles Gaudichaud-Beaupré accompanied Admiral Henri Louis Freycinet on his expedition to the South Seas in " L'Uranie ", and on returning to France published the results of his collections in the botanical part of Freycinet's *Voyage Autour du Monde* (1826). The lichens from this voyage were determined by Christian Hendrik Persoon and only four were collected in Australia; two from Port Jackson, New South Wales and two from Sharks Bay, Western Australia. However three of these species were new to Science: *Cenomyce australis* Pers. (now *Cladonia australis* (Pers.) Fr. syn. *Cladia aggregata* (Sw.) Nyl.) and *Parmelia angustata* Pers. (now *Anzia angustata* (Pers.) Müll. Arg.) from New South Wales and *Lecidea ochroleuca* Pers. from Western Australia. The remaining species was *Borrera chrysophthalmus* (L.) Ach. (now *Teloschistes chrysophthalmus* (L.) Th. Fr.) which was previously described from Cape of Good Hope.

In Caroli Linne's *Systema Vegetabilium* edited by Kurt Sprengel (vol. 4. 1827) only two Australian lichens are mentioned: *Cladonia retipora* (Labill.) Fr. from " Terra Dieman " and *Sticta Delisaea* Del. from " Ins King in freto Bass ad Nov. Holl ".

From 1839–42 Ludwig Preiss sometimes accompanied James Drummond on botanical excursions in the south-west of Western Australia and gathered many plant specimens, but the two were rivals and often at loggerheads. His lichen collections were sent to Elias Fries who published an account of them in *Plantae Preissianae sive enumeratio plantarum*, Vol. 2, which was edited in 1847 by Christian Lehmann. Of the twenty-three lichens two were described as new to science. These were *Cladonia scutella* Fr. and *Usnea pulvinata* Fr.

1839 saw Joseph Dalton Hooker accompanying Sir James Ross on his Antarctic Expedition. They left England in H.M. ships " Erebus " and " Terror " on 29th September and sailed via The Cape of Good Hope and Kerguelen arriving at Hobart on the 16th August 1840. From Hobart they sailed south visiting the Antarctic Continent and the Sub-antarctic Islands before returning to Hobart in the autumn of 1841. After a short visit to Sydney they sailed for New Zealand and eventually back to England via the Antarctic Continent, Cape Horn, Falkland Islands and the Cape of Good Hope. On returning to England Hooker drew up an account of the botany of the voyage, and the third and fourth volumes consist of the *Flora Tasmaniae* published during 1855-60. In this work Churchill Babington and William

Mitten enumerated the ninety-three lichens of which two species, *Sticta cetrarioides* Bab., (now *Heterodea muelleri* Nyl.) and *Baeomyces heteromorphus* Nyl. were new to science.

After Hooker's visit to Australia James Drummond sent to him a number of lichens from the Swan River Region in Western Australia. Over the following years these were passed on to Thomas Taylor, Jean F. Camille Montagne and Joseph Miles Berkley who published their names and descriptions in various papers in the *London Journal of Botany*.

In 1847 Dr. Ferdinand von Mueller emigrated to South Australia from Germany on the advice of Ludwig Preiss. He found employment with a chemist in Adelaide and in his spare time commenced the study of the local flora. He sent his lichen collections to Dr. Georg E. Hampe in Germany who published their names and descriptions in *Linnaea* (1852). They included the first collection of two species new to science, *Biatora byssaceae* Hampe and *Sticta muelleri* Hampe (now *Heterodea muelleri* (Hampe) Nyl.), the last species named in honour of Mueller. Early in 1853 Mueller was appointed to the position of Government Botanist, in Melbourne, in the Colony of Victoria. In the report of the Government Botanist for 1854 Mueller transcribed from *Linnaea* a list of thirty-one lichens from the Colony of Victoria.

Dr. William Nylander published his *Synopsis Methodica Lichenum* in 1858-1860 and in it he recorded seventy-seven lichens from Australia. It was Nylander who revolutionised the study of lichens by introducing chemical tests with potassium hydroxide and calcium hypochlorite as an aid to taxonomy.

Nylander mentions collections from "Sidney (sic) Novae Hollandiae" in his *Synopsis* (1858–69). These were collected by Jules Pierre Verreaux who was sent out to Australia by the Director of the Museum of Natural History in Paris. Verreaux collected in Australia and Tasmania for about seven years and when he returned to France in 1851 he took with him some 115,000 plant specimens. These were mainly of flowering plants but they did include a number of cryptogams.

In August 1863 Amalie Dietrich arrived in Brisbane on "La Rochelle" from Hamburg at the expense of J. C. Goddefroy a wealthy Hamburg merchant who had his own private museum of natural history. Dietrich collected mainly around Brisbane and in the north of Queensland for ten years. In 1871 she visited Ferdinand von Mueller in Melbourne, but after a short stay she returned to Queensland. There is no record of the number of lichens which Dietrich collected but many duplicates of her specimens were returned from Goddefroy's Museum to Ferdinand Mueller in Melbourne.

Friedrich Ludwig Leichhardt led an expedition in northern Australia from Jimbour, Queensland to Port Essington, an early settlement in the far north of the Northern Territory, in 1844–1845. He collected plant specimens for Ferdinand Mueller and

amongst these were several lichens which Mueller sent for determination to Dr. A. Krempelhuber, in Munich.

Rev. William Woolls arrived in New South Wales from England in 1831 and from 1832 followed his profession as Assistant Master at Kings School, Parramatta, New South Wales. Whilst there he spent much time exploring the bush around the district. In 1867 he published his *Contribution to the Flora of Australia* which included discussion of twenty-five lichen species that he collected in the Parramatta region.

Dr. Anton Krempelhuber (1870) records six lichens collected on the " Novara " Expedition. The list includes one species new to science, *Parmelia jeleneckii Kremp.* " New Holland " is the only locality given for these collections, but members of the expedition visited areas from Newcastle to Wollongong, New South Wales, in November 1858. It is recorded that they stayed with a Mr. A. W. Scott on Ash Island, Hunter River, and returned with botanical collections.

Ferdinand Mueller as Government Botanist of Victoria (1853–1896) had many plant collectors working for him. Charles French was originally plant propagator at the Melbourne Botanic Gardens. He travelled all over Victoria collecting plants for the Melbourne Herbarium. Mrs. Annie McDonald McCann who lived on a property just south of Mitta Mitta, Victoria, corresponded with Mueller and sent him plant collections from north-eastern Victoria. Edwin Merrall collected many specimens for Mueller in East Gippsland and later in Western Australia. Daniel Sullivan, headmaster of Moyston school, collected in and around the Grampians in Western Victoria. Carl Walter a professional seed collector began collecting plants for Mueller soon after his arrival from Germany. He collected in East Gippsland and other remote regions in Victoria. Johann Friedrich Carl Wilhelmi was also a professional seed merchant and botanical collector. He lived in South Australia and sent specimens from Eyre Peninsula, Port Lincoln and Mt. Gambier to Mueller. He later came to Melbourne where he became Acting Government Botanist in Mueller's absence. While in Victoria he made collections from the Dandenong Ranges and from the Grampians. The lichens collected by these early collectors were examined by Krempelhuber who published the names of one hundred and twenty-two species in his *A New Contribution to the Lichen Flora of Australia* (1880). Later collections were sent to Professor, Jean Müller (Müll. Arg.) at the University of Geneva, Switzerland. Müller tended to be a " splitter " and many of his " species " are based on small fragmentary specimens. However he described the greater part of the Australian lichen flora and it is mostly due to his efforts that we have useable names now.

Dr. Charles Knight, a New Zealand surgeon, visited Australia in c.1881 and collected fifty-two species of lichen in the neighbourhood of Sydney, New South Wales. He described them in the *Transactions of the Linnean Society of London* (1882).

This paper includes the descriptions and figures of forty species new to science. Fredrick Manson Bailey, Government Botanist in Queensland, sent many of his own collections from around Brisbane, together with those of Carl Heinrich Hartmann from the Toowoomba-Darling Downs region and Mrs. Flora Martin (see Campbell) from eastern Victoria to Knight. Bailey published the results of these investigations in his *Synopsis of the Queensland Flora* (1883).

Many other botanical collectors were working in Queensland at this time. Edward Macarthur Bowman was employed on Queensland stations and collected in north-eastern localities. James Keys was a resident of the Mt. Perry District and collected there. John Shirley was a school master and later Inspector; in his latter capacity he travelled widely and made extensive collections throughout the state. W. A. Sayer a cousin of Charles French was commissioned by Ferdinand Mueller to collect botanical specimens in Queensland. All of the specimens collected by these workers were sent to Mueller who sent duplicates to James Stirton and Jean Müller for determination.

In 1880 Hugh Paton from Glasgow made a tour around southern Australia and New Zealand. Five species which he collected in Victoria were named by Stirton and published in the *Transactions and Proceedings of the Royal Society of Victoria* (1881).

Richard Helms was naturalist and botanical collector with Sir Thomas Elder's Expedition to Central and Western Australia in 1891–1892. The expedition, under the command of David Lindsay set out from Warrina Railway Siding in South Australia and headed north-westward to the Everard Ranges, then turned westward into Western Australia. On reaching the Barrow Ranges they turned south-westward to the Frazer Range where they again turned north-westward to Mt. Magnet. Helms collected extensively during the whole journey and in the report of the expedition (Lindsay, 1893) numerous references are made to him arriving back in camp late from his scramblings in the mountains. The plant specimens which he collected were sent to Ferdinand Mueller in Melbourne. F. Mueller forwarded the lichens to Jean Müller in Geneva who reported on fifty-four species (Müll. Arg., 1892) in Hedwigia. Twelve of these were described as new species including *Endocarpon helmsianum* Müll. Arg., named in honour of its collector.

Reverend Francis Robert Muter Wilson was Minister in Charge of the Presbyterian Church at Kew, Victoria, from 1877 to 1897 when he retired to Canterbury, Victoria. Wilson collected prolifically in eastern Australia from Tasmania to Brisbane, including Melbourne suburban areas and on Lord Howe Island. Many of his collections were from the " Asylum Grounds Kew ". Between the years 1887 and 1900 he published twenty papers on his lichen collections, describing many species and subspecies as new to science. His main collection was donated to the

National Herbarium of Victoria, Melbourne and a duplicate collection was purchased by the National Herbarium of New South Wales. The bulk of the Melbourne collection was packed into a large crate, described by Professor Ewart, then Government Botanist of Victoria, as weighing over one hundredweight. This crate was sent through the Transport Department to Dr. Giocomo Albo at the University of Messina, Sicilia (Italy) on the 11th September 1907. It was unfortunately lost at sea, or landed at the wrong European port, as it was never heard of again. This was a great loss to Australian lichenology, as most of Wilson's type collections were in the crate. Fortunately Dr. Albo had received a small parcel previously, containing a number of type specimens. These specimens survived an earthquake which demolished the Botany Department at the University. They were eventually returned to Melbourne and form the basis of the National Herbarium's Wilson collection. The major part of the Wilson herbarium now extant is the duplicate collection held in the National Herbarium of New South Wales.

During Wilson's time another collector was active on the Victorian scene—Richard A. Bastow, an Architectural Draughtsman. He also was a prolific collector, taking dozens of duplicates from each locality. He was born in Edinburgh, Scotland, and emigrated to Tasmania in 1884 where he made many collections in the vicinity of Hobart. Later he moved to Victoria where he became an active member of the Field Naturalists Club. His paper *Notes on the Lichen Flora of Victoria* with one plate containing one hundred and twelve figures was published in the *Victorian Naturalist* (1914).

Edwin Cheel was engaged as a gardener at the Sydney Botanic Gardens where he also had care of the Cryptogamic Herbarium. He compiled a *Bibliography of Australian Lichens* (1903) and this was supplemented in 1906 by a second paper including New Zealand and the South Seas Islands. This very valuable contribution lists nearly every paper that had ever been published on Australian lichens up to that time. In 1908 he was appointed to the staff of the National Herbarium of New South Wales and rose to the position of Chief Botanist and Curator; a position which he held until his retirement in 1936.

After Wilson's death in 1903 the study of Australian lichens lapsed until 1938 when a promising gardener in the Royal Botanic Gardens, Melbourne, Patrick Noel Sumner Bibby, moved into the herbarium to assist with the plant determinations. Bibby became very interested in cryptogams, particularly in lichens and hepatics. He only published six short papers on lichens, but his most important contribution was the compilation of an index to all of the species of lichens described for Australia. This index is on cards and it is unfortunate that it was never published.

James Hamlyn Willis, Assistant Government Botanist at the National Herbarium, Melbourne, until 1972 is also interested in lichens. He and Bibby collaborated in their studies and after

Bibby died in 1955, Willis published a new genus, naming it *Bibbya* in his honour. This action was prompted by Dr. Carroll Dodge (St. Louis, Missouri) who received material from Bogong High Plains collected by Bibby. Unfortunately this lichen was not new; it was *Toninia bullata* a species found growing in South America and Tierra del Fuego (see Willis 1959:91).

In recent years Australia has been fortunate in having a few very enthusiastic lichen collectors. Chief amongst these are J. H. Willis who has always collected lichens on his many botanical excursions around the continent (see Muelleria 3:74). Alan Clifford Beauglehole who has collected in all states except Tasmania; Rex B. Filson who has collected in all southern Australian States and south-east Queensland; Nathan Sammy who is working on the lichens of Western Australia: Rodrick W. Rogers, Rodney D. Seppelt, Nikolai Donner and Lindley D. Williams who have collected widely in South Australia; Geoffrey C. Bratt and Joseph A. Cashin who have made large collections throughout Tasmania; and John C. Whinray who has made an extensive survey of the lichen flora of the Bass Strait Islands. Recent collections are being used by present day lichenologists in the preparation of publications on the Australian lichen flora.

A complete bibliography of Australian lichens is beyond the scope of this current sketch but extensive bibliographies are to be found in *Catalogue of the Lichens of Tasmania* Wetmore (1963) and *Catalogue of the Lichens of Australia exclusive of Tasmania* Weber and Wetmore (1972).

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